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Contact: Vicky Krikelas
(206) 860-3263

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Northwest Scientists Win Prestigious NOAA Technology Transfer Award
New technology helps tribes detect harmful toxins in shellfish

Three scientists from NOAA's National Marine Fisheries Service were recently awarded the 2007 NOAA Technology Transfer Award for their development and commercialization of rapid, cost-effective kits to detect harmful algal toxins in shellfish, which threaten human health in U.S. coastal waters.

Award winners Dr. Vera Trainer, Bich-Thuy Eberhart and Jack Wekell (now retired) of Seattle's Northwest Fisheries Science Center (NWFSC), together with their collaborators at NOAA's National Centers for Coastal Ocean Science and the National Ocean Service's Beaufort Laboratory, developed this advanced technology to help coastal tribes quickly and accurately determine contamination levels in shellfish and expedite harvesting decisions for shellfish beds in remote areas of the Washington coast.

In the Northwest, the primary harmful algal bloom toxin affecting shellfish is domoic acid. This toxin is produced by blooms of microscopic algae known as *Pseudo-nitzschia* and accumulates in shellfish, crabs and fish. Native peoples like the Quileute and the Quinault are most adversely affected by domoic acid, and the remoteness of their community and dependence upon shellfish create a unique situation that make regular monitoring by state agencies impractical.

Tribal and non-tribal communities alike suffer severe economic losses due to recreational and commercial harvesting closures and lost tourism. Since 1995, there have been 38 harvesting closures due to domoic acid toxicity in razor clams and Dungeness crab, and many of the closures lasted close to a year. In 2002, the Quinault tribe lost almost $650,000 in razor clam sales alone.

To meet the need for a safe, rapid, cost-effective monitoring tools used by tribes, local environmental groups and state agencies to monitor biotoxins in shellfish, NOAA and collaborators adapted a medical technology to develop a rapid detection bioassay based on antibodies for domoic acid. As a result, the Quileute and Quinault tribes now have the capability to monitor their subsistence food source for domoic acid levels within 2 hours of sampling at a cost of about $10 per sample. In comparison, samples sent to the State of Washington Department of Health for regulatory testing took a minimum of 3 days and cost about $250 per sample.

The NOAA Technology Transfer award recognizes NOAA scientific, engineering, and technical employees for inventions or other outstanding scientific or technological contributions of value to the United States due to commercial applications and exemplary activities that promote the domestic transfer of science and technology developed within NOAA and result in the use of such science and technology by American industry, universities, state or local agencies, or other non-Federal partners. The NWFSC last received this award in 1999 for the use of decanter centrifuge technology for the manufacture of surimi.

The NWFSC conducts research to help conserve and manage living marine resources and their ecosystems in the Northeast Pacific Ocean. The center is particularly active in the Puget Sound region and its research assists resource managers in making sound decisions that build sustainable fisheries, recover endangered and threatened species, sustain healthy ecosystems and reduce human health risks.

NOAA, an agency of the U.S. Commerce Department, is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of our nation's coastal and marine resources. Through the emerging Global Earth Observation System of Systems (GEOSS), NOAA is working with our federal partners and nearly 60 countries to develop a global Earth observation network that is as integrated as the planet it observes, predicts and protects.

On the Web:
NOAA: http://www.noaa.gov
NOAA Fisheries: http://www.nmfs.noaa.gov
Northwest Fisheries Science Center: http://www.nwfsc.noaa.gov